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Original Communications.

DIFFUSE SUPPURATION IN THE WALLS OF THE CECUM AND ASCENDING COLON WITHOUT PERFORATION.*

By J. W. HENSON, M. D., F. A. C. S., Richmond, Va.
Associate Professor of Surgery, Medical College of Virginia; Surgeon on the Staff of the Memorial and Virginia Hospitals.

A report of the history and pathological findings of this case will be in order first, thus providing for a better appreciation of points discussed by the writer.

Case.—O. L., white male, aged 26 years, of German birth, laborer at Richmond Cedar Works, admitted to hospital, June 11, 1918.

Family History.—Father and mother living and in good health.

Past History.—Only sickness he remembers as a child was an abscess under the chin, probably from adenitis. Has not been sick since until about three years ago began to have pains, cramp-like in character, in right lower quadrant of the abdomen. These attacks of pain would last for a few minutes or a few hours, and would come at intervals of a month or may be six months. He also had some pain in the abdomen after almost every meal, less severe, of course, than the pain in the attacks just described. Two or three weeks ago had an attack more severe than any he had experienced before. The pain was different (not cramp-like in character) and not localized to the lower right quadrant entirely, but extended across the abdomen to some extent. There was also soreness which he does not recall having had before. He was sick in bed a week this time with the pain and soreness. Was never sick enough to stop work before. After this week of sickness, he got up and went to work for a week. The pain and soreness were still there, though less. His doctor advised him to come to the hospital for an operation, as he probably had appendicitis.

Physical Examination.—Negative except patient was thin and very anemic in appearance, and tenderness with rigidity over the head of the cecum was quite evident.

Diagnosis.—Chronic appendicitis.

Urinalysis	Blood	
Color—Straw.	Leucocytes	9.000
Transparency—Cloudy.	Polys.	70
Specific Gravity—1012.	Large Lymphs.	6
Reaction—Acid.	Small Lymphs	22
Microscopical Examination—Negative.	Basophiles	.5
	Eosinophiles	1.5

On June 15, 1918, I operated upon Mr. L., fortunately making a right rectus incision. The cecum and greater part of the ascending colon on palpation felt like a bologna sausage. There were no adhesions. The surface, particularly that of the cecum, was red somewhat like an inflamed mucous membrane. The appendix was free but thickened and indurated. The lymphatic glands were enlarged in the lower part of the mesentery and in the meso-colon, as far up as the head of the pancreas. There were no places in the cecum or colon that presented any fluctuation. The whole surface of the mass was firm, so much so that while an inflammatory condition was considered probable, I suspected carcinoma. The specimen was taken to the laboratory before the operation was completed without my knowledge and, of course, before I had a chance to inspect it. Those working in the laboratory, among them Dr. S. W. Budd, also thought, when they saw and felt it, that it was a carcinoma.

Operation.—The last three or four inches of the ileum, the cecum, ascending colon, and two or three inches of the transverse colon were removed, not only to get well beyond involved tissue in the gut, but to reach all the glands in the mesentery and mesocolon. An end to side anastomosis was made between the ileum and the transverse colon. The peritoneum was stitched over the raw surface left by removal of the gut.

Gross Examination of the Specimen After Removal.—Incision into the wall at almost any point revealed pus. Epithelial surface of mucous membrane seemed intact.

*Read before the meeting of the Southside Virginia Medical Association, at Petersburg, June 24, 1919.

Microscopic Examination.

Mucosa.—Round cell infiltration in the deeper layers. Individual cells swollen and granular. Goblet cells much in evidence.

Sub-Mucosa.—Diffuse infiltration; abscess areas varying in size from a pin head to a pea.

Muscularis.—Infiltrated but not excessive. Muscular fibres swollen and granular.

Serosa.—Much thickened, infiltrated and presenting fresh granulations in sections made in the red areas.

Several microscopic sections were made from various parts of the specimen without any light being thrown upon the fundamental cause of the condition. The pathologist was asked to try again and look for evidence of tubercular infection. Many more sections were made of the walls of the gut and some of the enlarged glands. Typical tubercles were at last found in both locations, thus clearing up the etiology.

Post Operative Clinical Notes.

June 16, 1918. The day following the operation, no nausea, no pain, no elevation of temperature, pulse normal, abdomen flat. These comments would apply practically to each day succeeding the operation until the patient was discharged in good condition on July 13, 1918.

The patient was very anemic and weak and, as he had no one at home to look after him, he was kept in the hospital four weeks after the operation to be strengthened by tonics and feeding.

He returned to work about six weeks after being discharged and has continued to improve in strength, flesh and color. Since the operation he has had a good appetite and good digestion, whereas before the operation he had little appetite and his digestion was very bad. He now weighs 130 pounds, whereas his former weight was 115 pounds or less.

Review of the Findings.—In spite of diffuse pus in the walls of the gut there were no adhesions and the mucous membrane was intact. No pus germs or products had reached the peritoneal surface or there would have been adhesions. Sometimes when we open the abdomen and locate a tubercular process in some part of the intestinal tract, we find adhesions to adjacent coils or other viscera even if there be no secondary pyogenic infection and sometimes these adhesions are very numerous and hard to deal with.

If secondary infection has taken place, the rule is to find a pocket of pus surrounded by intestinal coils and adhesions in abundance. In the wall of some coil limiting this pocket will be found a break leading to the original focus. The rampart of round cells disclosed in the examination of this specimen probably explains why in this case the infection had not reached either the mucous or peritoneal surface, though the pus had infiltrated the walls of the cecum and greater part of the ascending colon. The low leucocyte count would further support the view that the firmness of the round cell wall limited the advance of the pyogenic infection and the absorption of toxins. The prolonged slow absorption of toxins, however, had given the patient a pronounced anemia.

The fact that his symptoms differed in character in the three or more weeks just preceeding the operation would argue that probably the pyogenic infection had not been present before. Note in his history that about three weeks before entering the hospital he had been compelled to go to bed, which he had never done before and that he had soreness which was never present before and that his pain differed in character and extent from his former pains. Had he gone a few weeks longer without relief by surgical means, the round cell rampart would have yielded and there would have been both pyogenic and tubercular infection outside the wall of the gut with abundant adhesions involving many coils of intestine.

This case is not reported because it was a successful colectomy. Removal of the cecum and ascending colon is being done for a number of conditions and in most cases successfully as far as recovery from the operation is concerned and not infrequently it brings the desired relief.

It is not reported simply because of the rarity of the pathological findings, though they are rare. Diffuse suppuration in the walls of the colon and cecum, without perforation and adhesions, was found, by careful search of the library of the Medical College of Virginia, to be mentioned in only one journal—a Russian one.

This case is reported for three reasons.

First. To remind us again that a tubercular

process within the abdomen can be successfully eradicated when the conditions are such that it can be handled radically even if apparently heroically.

Second. To point out that the very rarity of the pathological findings (wide infection without perforation or adhesions) is proof that we must catch these cases early if we wish to avoid conditions that are either very difficult or impossible to deal with.

Third. To point out the similarity of the symptoms in tubercular infection of the cecum or ascending colon to ordinary chronic appendicitis and to emphasize the importance of getting patients with these symptoms to the operating table early, because delay in operating for a tubercular appendix, or tubercular cecum, or colon, may be more serious than delay in operating for an ordinary chronic appendicitis.

In conclusion, and for the sake of emphasis, what can surgery offer the victims in whom tubercular and secondary pyogenic infection have reached the peritoneal surface of the cecum or colon? If conditions are such that resection can be safely done (a resection that takes care of all infected tissue), the final outcome will be a happy one. If, however, the coils of intestine involved are too numerous to permit of a safe resection, or if the process has involved a large part of some important organ or the gut is glued over a broad area to an infected abdominal wall, making resection either very hazardous or impossible, drainage is either the safest procedure or the only procedure at our command according to the findings. What is the outcome of drainage in such cases? Rarely a cure. Frequently a permanent sinus and finally death from advance of the disease or infection of some distant organ.

405 *Allen Avenue.*

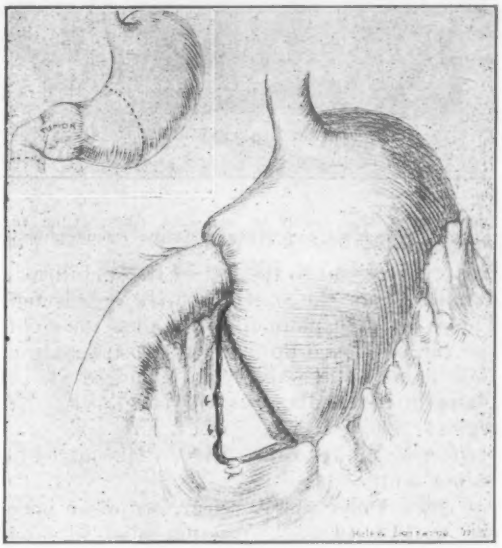
CANCER OF THE STOMACH WITH ASSOCIATED PELLAGRA.*

By ROBERT C. BRYAN, M. D., F. A. C. S., Richmond, Va.

History.—M. A. McL., referred by Dr. O. L. Denning, of Dunn, N. C., age 49, married, 10 children, farmer. Father died of dropsy age 70, mother at 81 of old age, four sisters and one brother living, one sister, 60 years of age, is stated to have pellagra.

*Read before the Richmond Academy of Medicine and Surgery, May 27, 1919.

The patient had some of the mild diseases of childhood; denies venereal infection. He is uneducated, can neither read nor write. Fifteen years ago he began to drink heavily and drank up to the time the state went dry in 1916. He gives a distinct history of ulcer of

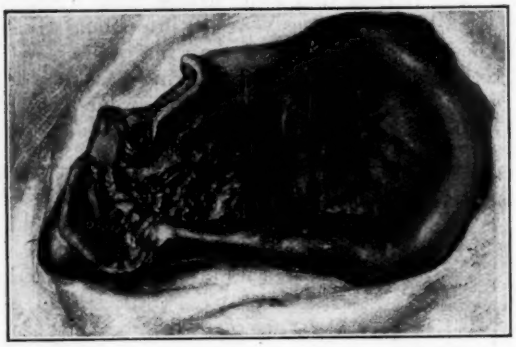


I.

The pylorus resected, gastroduodenal anastomosis carried out.

the stomach twenty years ago, the pain being relieved on eating food or drinking fluids, preferably warm. Two years ago he commenced to lose weight and at this time noticed a small knot in the stomach, which is now lower down and more to the left than formerly. For twelve months he has had occasional spells of nausea and vomiting. At this time he noticed that his tongue was thickened, red, and had deep furrows, and there appeared on the back of both hands a symmetrical eruption. He consulted a physician in Raleigh who pronounced it pellagra and gave him four injections of 606. For the last three or four months he claims to have vomited up everything he ate from five minutes to one hour after ingestion. On account of weakness and loss of weight, he has been unable to work and has now been confined to the house for the last three weeks. His original weight was 190; he now weighs 140. There is but little pain but a constant soreness in the region of the stomach.

Examination.—Tall, thin, emaciated man. Blood pressure 140-86. Heart and lungs nega-



II.
Drawing of the specimen removed illustrating the tumor and great hypertrophy of the stomach wall, proximally.

tive. Above and to the left of the umbilicus a distinct tumor the size of a hen's egg, is felt. This is movable, more upward and to the right, and can be shoved up under the costal margin. It is painless. There are no enlarged glands found in the axilla, epicondylar or inguinal regions.

Blood.—White cells, 4,400. Haemoglobin, 85 per cent.

Urine.—Color amber, clear, sediment none, specific gravity 1030, reaction acid, albumin trace, sugar negative, indican negative, acetone negative, blood none, pus few cells, casts present, hyalin, mucus abundant.

Wassermann negative.

Stomach contents.—Test meal Ewald. Vomited. Quantity received about 30 ounces; odor negative, color gray, no fluid, consistence of precipitate paste, mucus no excess, free HCl none. Blood pigment none, bile none, budding yeast abundant, sarcinae none, Oppler-Boaz bacilli present, pus none, mucus no excess, blood corpuscles none, epithelia none, food remnants starch. Remarks: Many motile bacteria present.

Dr. Murrell is invited to pass upon the pellagroid state and reports the following:

"I examined the patient on April 9th, 1919. I found him to have an eruption on the back of his hands typical of pellagra, showing the sharp gauntlet line of demarkation. The tongue was red and serrated, also typical in appearance. The gastro-intestinal symptoms were not marked, but there was the characteristic slowness of mentality found in pellagra.

"I next saw Mr. McL. on April 28th, following the operation. The general appearance of the patient was much better, his slowness of speech improved. The tongue was still red, but also slightly improved. The eruption on the back of the hands had practically disappeared

PLATE III.
Immediately after barium meal. New "Pylorus" open with Duodenum filled. Note: Small size of stomach, normally functioning "pylorus," no evidence of further malignant involvement.

PLATE IV.
"Pylorus" closed.

leaving only a slight desquamation at the site of the gauntlet line."

Dr. Murrell states that the condition on the back of the hands is pellagra, but that operation is not contraindicated.

Operation.—April 10th, general anesthesia, high median incision, xiphoid to umbilicus. The tumor that is felt about the umbilicus proves to be a tumor of the pylorus. There is no peritoneal involvement. Evidence of an old white scar is seen anteriorly about the greater curva-

ture at the pyloric junction. The liver is normal, with a sharp edge; the gall bladder is normal and no mesenteric glands are found. The transverse colon is drawn into the operative field and the stomach dragged downwards and upon the belly wall. The gastro-hepatic omentum about the pylorus and lesser curvature is tied off, the duodenum freed as far as possible, doubly clamped and proximally incised. The gastro-colic ligament is tied off and the greater curvature of the stomach is freed for three-fifths of its excursion; it is now seized with heavy gastric clamps and the thickened hypertrophied walls are incised distally, the section removed carrying the pyloric tumor is 5x7 inches. The lower two-thirds of the gastric opening is invaginated with catgut, superimposed Pagenstecher. The duodenum and gastric lumen, now of the same size, are brought together by end to end anastomosis with cat-

PLATE V.

Three hours after meal. Stomach more than half empty. The six hour plate showed stomach empty, barium meal in ileum, cecum and hepatic flexure of colon.

gut No. 2 and linen. It is noted that the tension on the sutures is considerable, and for fear that the line may give way at some point a rubber tube is placed at the lower angle of the abdominal wound and carried upwards to the pylorus. There has been so slight a loss of blood from the gastric vessels that no individual trunk is tied off.

Duration of the operation one hour and thirty minutes. Patient on leaving the table has pulse of 88.

Report on Tissue from Stomach.—"Specimen is cylindric cell cancer, and is malignant."

S. B. Moon, M. D.

The convalescence is uneventful, the stitches are removed on the eighth day, the patient's food is rapidly increased and he leaves the hospital on the 10th day of May.

July 2nd, 1919, Dr. Denning writes that the patient is apparently in excellent health, has walked four miles, increasing daily in weight and there is no evidence of the pellagra.

The accompanying X-ray pictures of the stomach, Nos. 3, 4 and 5, were taken by Dr. Fred M. Hodges, who reports the legend of the plates.

A CASE OF HODGKIN'S DISEASE IN A GIRL OF TWO YEARS.

By LANGLEY PORTER, M. D., M. R. C. S., Eng., San Francisco, California.

The morbid entity known as "Hodgkin's Disease," or Lymphadenoma, is not infrequently found in children. For the most part, however, those attacked are in their second decade. Hugh Thursfield says that of a hundred admissions for this disease to Bartholomew's Hospital for ten years, thirty were patients less than ten years of age. During the same time thirteen undoubted cases were admitted to the wards of the Great Ormond Street Hospital for Children, an admission percentage of 0.1%. All reporters emphasize the fact that the disease is very rarely encountered in children under five years of age, and it is practically unknown in infancy. Reginald Miller records the youngest authentic instance of the disease, the child being twenty-five months of age at the onset. The child we are reporting was thirty months when she came under observation; the onset of her disease apparently came at her twenty-seventh month.

The unusual features that make this case worth reporting are: 1. The early age of the onset. 2. The female sex of the child (males are affected at a ratio of 6-1). 3. The rapid onset which followed what was undoubtedly an infection involving the gastro-intestinal tract. 4. The early and extreme involvement of the mesenteric and retroperitoneal glands. 5. The late and slight involvement of the cervical glands which are usually affected early and profoundly. 6. The remarkable, extensive, and early involvement of the skin in morbid process. 7. The ex-

treme edema of the legs while the anemia was still far from profound. 8. The intermittence of the fever and the toxic symptoms which on several occasions gave an unwarranted hope for improvement. 9. The repeated but temporary improvement of the child after blood transfusions. 10. The absence of any demonstrable infective agent—cornebacterium Hodgkini, or other organisms in the glands for diagnostic purposes. 11. The extensive invasion of the lung septa by the endothelial cells characteristic of this disease. (Ordinarily such invasion is limited to the peribronchial and superficial pleural areas of the lung.) 12. The unusual size of the spleen, which in this disease most often is but moderately enlarged.

The difficulties of diagnosis in this case were largely a matter of reaching a decision between Lymphadenoma and Lymphosarcoma. The absence of early jaundice, the small liver, the huge spleen, the lack of any tendency of the glands to infiltrate, and the protracted course finally forced opinion to the diagnosis of Lymphadenoma, a view that was amply confirmed by studies of tissue sections.

This case unfortunately brought only more evidence to the sad array which proves that up to now we have discovered no therapeutic resource of avail in the amelioration of Lymphadenoma. There is nothing that we can turn to with any hope of aiding these patients; removal of focal infections, autogenous vaccines, hygienic measures, blood transfusions, X-ray exposures, radium emanations, arsenic in any form, all fail when put to the test.

L. B.—Aged two and one-half years. A female child was first seen in March 1917. The complaint was that the child was suffering from a fever, anorexia, anemia, and profound malaise of increasing intensity.

The family history was without importance, and up to March, 1917, the child had been in perfect health. At that time a severe dysentery attacked her as well as a number of other children, her playmates. This attack was attributed to the fact that she had eaten spoiled apples. A few weeks before this she had had a retropharyngeal abscess which had been opened and which healed without incident. Late in May she developed a persistent but not severe cough. There was occasional vomiting. Her temperature had risen almost every day. She suffered from marked flatulence, no abdominal pain, a capricious appetite, disturbed sleep, increased pallor and an intense itching of the skin.

At admission to the hospital her weight was twenty-three pounds. She was an emaciated, pale child, giving evidence of much discomfort. The pupils were dilated, otherwise eyes, ears and teeth showed no abnormalities. The tonsils were enlarged and red, all visible mucous membranes were pale. There were a few small, anterior and posterior cervical glands palpable and visible. The chest was thin, moved equally and fairly well. There was diminution in the resonance of the right lung anteriorly and at the right apex behind. The breath sounds were exaggerated; breathing was very high pitched on the right of the spinal column between the third and sixth dorsal. Scattered rales were heard, especially at the base of the right lung. There was dullness over the spine to the fourth dorsal and whispered pectoriloquy to the same point. There was nothing abnormal about the heart except that there was a diastolic murmur audible over the whole precordium, loudest at the third left space. There were no other murmurs.

The abdomen was very much distended, spleen was extremely large and very hard. It extended as far forward as the umbilicus and down to within an inch or less of the iliac crest. Masses of large, hard glands could be palpated everywhere throughout the abdomen and the liver was not unduly large. The shifting dullness of both flanks was undoubtedly due to presence of fluid. The extremities were thin with marked edema of both feet and legs half way to the knees. Genitalia were normal.

The skin everywhere, more especially the skin of the body, was covered with scattered, slightly raised lenticular papules, varying in size from a pin head to a small navy bean. These were pale in color, and apparently caused intense itching for the skin was extensively marred with scratch marks.

During a six weeks stay in the hospital the child gained a pound, improved in every way, the spleen decreased very materially in size and during this time her blood improved. On admission the blood showed a hemoglo-

bin of 35%, number of red blood corpuscles 2,290,000, white blood cells 20,000, neutrophiles 82%, lymphocytes 13%, large mononuclears 1%, eosinophiles 1%. At the end of six weeks there was a gain of 20% in the hemoglobin and a million and a half in the red cells. The Wassermann and urine were negative. Nose and throat cultures showed staphylococci. The temperature during the first week ran steadily to 102°, and gradually fell to normal. Treatment during this time was chiefly dietetic, reenforced by injections of cacodylate of iron. She left the hospital and continued on with the hygienic treatment.

She had a relapse and went steadily down hill and again came under our observation in October 1917. Her hemoglobin at this time was 40%, red cells 3,280,000 with normal white and differential. She was transfused and following the transfusion her temperature went to 103°, but came to normal the next day, and there was a slight temporary improvement in all symptoms, especially in well-being and appetite and the edema was completely cleared up and did not return. On October 4th she was transfused once more, and again on the first of November.

After dismissal from her second admission the blood was studied by Samuel Hurwitz and on several examinations at two or three day intervals was found to be normal except for the low hemoglobin and a moderate diminution in red cells. The deformity of the red cells and polychromasia were trivial.

BLOOD EXAMINATIONS—

September 22, 1917—
Hemoglobin (Dare) 27%
Red blood corpuscles 3,008,000
White blood corpuscles 9,000
Smears:—Red blood cells extremely pale; only moderate aniso-poikilocytosis. No nucleated red blood corpuscles. The polymorphs constitute 72% of the total leucocytes. Platelets, abundant.
September 27, 1917—
Transfusion at 2:00 P. M. Blood examination at 5:00 P. M.
Hemoglobin 40%
Red blood corpuscles 3,280,000
White blood corpuscles 12,000
October 4, 1917—
Test for the fragility of the red blood corpuscles.
Maximal resistance (average normal, 4.7) 5.0
Minimal resistance ..... 3.5 Normal
October 9, 1917—
Hemoglobin 28%
Red blood corpuscles 2,576,000
White blood corpuscles 6,000
Smears:—Red blood corpuscles, pale; centres clear; some distortion in size and shape. One nucleated red corpuscle seen.
October 13, 1917—
Hemoglobin 35%
Red blood corpuscles 2,736,000
White blood corpuscles 4,000
Smears:—Moderate aniso-poikilocytosis. Some polychromasia. Polymorphs constitute 68% of the white cells.

On the 23rd of January, 1918, after having been in fair health for some weeks she was taken suddenly with clinical signs of pneumonia together with an enormous dilatation of the heart. Moderate enlargement of the posterior cervical and submaxillary glands had now appeared for the first time. The breathing was urgent and rapid, pulse weak and irregular. The breathing was aggravated by the enormous distention of the abdomen which on palpation showed the exaggerated state of the physical condition as previously described. She died at 4 A. M., on January the 24th, and an autopsy was performed by William Ophuls, assisted by Dr. Anna Macrae. I am much indebted to Dr. Ophuls for a very painstaking study of the tissues, his autopsy report and microscopic findings which follow.

AUTOPSY:

Fairly well built, rather poorly nourished female child of about 2 years.

Skin and visible mucous membranes pale.

Teeth—normal.

Large masses of rather hard, fairly discreet glands in the posterior part of the neck, and in the submaxillary region on both sides. On left larger than on right.

Palms of both hands—some rough places, especially at sides of palms.

Axillary glands are large and hard (size of lima bean.)

Skin of trunk is quite rough, full of small, hard nodules, from just visible to 2 or 3 m.m. in diameter. Some of these are covered with scabs, others show like little white scars.

Small, petechial patches on both legs in vicinity of knees.

Almost complete absence of subcutaneous fat. Marked atrophy of muscle.

Peritoneum and abdominal muscles very pale.

Lung shows a diffuse, grayish red consolidation posteriorly, involving practically entire lung.

Pleura on both sides show slight diffuse thickening, with a slight hemorrhage. Bron-

chial glands, right same as left. Right lung shows some diffuse consolidation except for anterior part of middle lobe. Bronchi on both sides are filled with mucopurulent material.

Heart, enlarged, in diastole. P. M. slow in pulmonary artery. Heart muscles pale and flabby. Valves, aortic, pulmonary, coronaries, normal.

Aorta—Surrounded by enlarged glands; considerably compressed but not invaded. The vena cava and iliac veins are also somewhat compressed, but otherwise free.

Blood in large vessels very thin and watery. In the peritoneal cavity there is about 50 c.c. of clear, yellow fluid.

Both pleural cavities contain a small amount of bloody fluid; about 250 c.c. of clear fluid in pericardium.

Spleen—Much enlarged, projecting 4 finger breadths below the free margin of the ribs. Some adhesions between spleen and omentum. Capsule shows a slight irreglar thickening. There are a few pitted scars on convexity. Measures 5½x3x2 inches. Very firm. Cuts with difficulty. Cut surface is of dark brown color, full of just visible grayish nodules.

Liver—Projects 3 finger breadths on the right side and disappears behind ribs in midline on left side. Measures 8x5x3 inches. Capsule shows slight diffuse thickening. Liver tissue firm, pale, grayish red, full of minute yellow spots.

Bile duct patent.

Stomach and transverse colon—Pushed down. Stomach contains some mucus and partly digested milk. Mucous membrane very pale, otherwise normal.

Abdomen very much distended, also lower part of the chest. Several glands about size of hazlenut in inguinal and femoral region where there are some scars.

Omentum very thin and shows a few small reddish glands.

In left gastro-coeliac region there are many grayish-red, hard enlarged glands; largest is the size of a hazelnut.

Diaphragm—4th rib on both sides. In anterior mediastinum is small remnant of thymus and several large hard glands.

Retroperitoneal lymph nodes are all markedly enlarged and the tissue about them is very hard and indurated. The glands themselves show a brownish cut surface. Bone marrow very soft, reddish brown color.

Left adrenal buried in dense fibrous tissue, shows marked atrophy, otherwise normal.

Left kidney somewhat swollen; pale; measures 3½x1x2 inches. Cut surface shows marked edema.

Right adrenal same as left.

Right kidney about half size of left; somewhat more congested; does not show so much edema.

Pelvic organs normal, except for large masses of glands along the iliac arteries.

All the mesenteric glands are greatly enlarged; largest, size of a walnut.

Pancreas tissue shows some large glands at tail and head; also enlarged glands at hilus of liver.

Gall bladder contains some thin bile.

Appendix normal.

Intestines normal; no sign of lymphoid hypertrophy.

Cervical glands same as others.

Esophagus and thyroid large. Trachea normal.

Diagnosis: Lymphadenoma, general. Hydropericardium. Broncho-pneumonia. Hodgkin's Disease in child involving lung.

MICROSCOPIAL EXAMINATION.

Sections of spleen show irregular masses of dense fibrous tissue about the small arteries. There is a good deal of pigment in the tissue; besides this, there are numerous small, nodular areas made up of large fusiform and star-shaped nodules. Large, light nucleated giant cells, no evidence of cells with large light nuclei. There are some large, multinucleated giant cells, no evidence of caseation. Many of the cells are heavily pigmented. No parasites found in any of these giant cells.

Sections of lymph nodes show small remnants of lymphadenoid tissue; otherwise irregular masses of dried nodules of the kind described in the spleen.

Sections of the skin show in the papillary layer groups of large cells very much like those that form the nodules in the spleen.

Another lymph gland shows a filling of the lymph spaces with these large mononuclear and giant cells.

Lung shows a diffuse cellular thickening of the septa causing a marked narrowing of the spaces. The thickened septa contain lym-

phocytes and large mononuclear cells. The air spaces are very much narrowed, lined with proliferated epithelium; some of them are filled with masses of degenerating cells.

Certain of the lymph glands show the structure of fibro-sarcoma with large fusiform cells. Some of the newly formed tissues in lymph glands show marked fatty degeneration.

Pancreas shows a marked fibrous thickening of the interlobular connective tissue.

Liver shows marked dilatation of the capillaries, the dilated capillaries are filled with blood in which there are many leucocytes and some large mononuclear cells.

In periportal connective tissue there are several nodules made up of large cells.

Kidney shows a marked congestion and edema; tubules are wide and filled with granular material. Glomeruli are rather large and cellular.

Bone marrow shows in some places irregular areas in which the marrow tissue is replaced by large mononuclear cells, which are partly polygonal and partly fusiform. There are also few giant cells.

SMEARS.

Bone marrow shows some neutrophilic myelocytes, many neutrophilic leucocytes, many large irregular cells with a somewhat spongy protoplasm that stains blue with Giemsa method. Some of the cells are pigmented; very few eosinophiles. The red blood corpuscles are of irregular sizes and shapes. Few nucleated red blood corpuscles; few short chains of streptococci. Some multi-nucleated giant cells.

The spleen shows many of the large cells with the blue protoplasm; few neutrophilic nucleated red blood corpuscles. No cocci found.

Schroth Building,
240 *Stockton Street.*

THE THYROID—ITS RELATION TO THE FEMALE SEXUAL SPHERE.

By JOSEPH BEAR, M. D., Richmond, Va.
Instructor in Obstetrics, Medical College of Virginia; Lecturer on Obstetrics, Virginia Hospital Nurses Training School; Obstetrician to City Home; Member of Obstetrical Staff, Virginia Hospital.

It is generally accepted that the thyroids are influenced to a marked degree by menstruation, pregnancy, and lactation, but our knowledge thus far is chiefly clinical and has not yet reached that point of accuracy necessary to a comprehensive understanding of the subject.

It is my purpose in this paper to bring to the surface a few hidden points about the thyroid gland, with its relation to obstetrics, especially as it touches the question of the function of the reproductive organs, yet in this connection the phenomenon presented by this gland can not well be overlooked. The thyroid glands along with the other ductless glands may be said to be a mysterious family living within the human organism and exhibiting peculiar functions which have puzzled the minds of the medical profession.

In this gland we have a structure which has proven to be of great importance to the balance of metabolism, yet it is an organ subject to many changes as to size, contour, structure and function. These changes are evident in a variation in the amount of internal secretion, if not in its quality, resulting in hyper-, hypo-, and possibly in some cases in dysthyroidism with their associated changes of metabolism, and its mechanical interference from the growth, embarrassing respiration, circulation and nerve function.

A great many men of trustworthy note, such as Aetius, Spraine, Hunter, Pettit, Waller, and Lange hold that there exists a close relation between the thyroid gland and the organs of reproduction. A very obscure part of the reaction of the maternal tissues to the infantile stimulus is that which has to do with the activities of the ductless glands. These all seem to have a part in the chemical body-changes of child-bearing. The Romans used to appoint a committee of matrons to measure the neck of the bride on the night of the wedding with a silk thread and re-examine it again the following morning, and if there was a slight increase it showed that coitus had taken place; on the other hand if no enlargement, coitus had already taken place before marriage. Indeed, it was known to these ancients that the thyroid enlarged in gestation, and the matrons used to measure the neck of the young wife soon after marriage and again at a later date to discover if there was such an increase as might indicate the occurrence of conception.

Gaskell says: "Perhaps the most striking result of the researches is the discovery that the thyroid gland is derived from the uterus of the palaeostracan ancestor. The relationship which has been known from time imme-

morial to exist between the sex organs and the thyroid in man and other animals, and has still been a mystery without any explanation, may possibly be the last recollection of a time when the thyroid glands were the uterine glands of the palaeostracan ancestor." Though these were once upon a time intimately united and are now widely separated, a strange connection continues to exist between the thyroid gland and the generative organs even up to the highest vertebrates. The greater frequency of goiter during sexual life, both in male and female indicates a close physiologic relation. The greater frequency of goiter in the female and the greater susceptibility of this sex to experimental hyperthyroidism, the enlargements of the thyroid at puberty, at the menstrual period, at marriage, during courtship, during a period of excessive coitus, attending nymphomania, during pregnancy, during the puerperium, at the climacteric period and with uterine or ovarian congestions, indicates that there is an interrelation more active in the female than in the male. One authority, Lange, goes so far as to say that "Hyperplasia of the thyroid gland is a physiologic symptom of pregnancy." Waller is of the opinion that the gland enlarges in response to the need of more thyroid secretion to take the place of deficient secretion from the ovaries. Conn and Goodall are of the belief that the thyroid enlarges in trying to furnish enough secretion to neutralize an over-secretion from the ovaries.

In the physiology of pregnancy the thyroid becomes more vascular, often hypertrophies. The enlargement is noticed after the sixth month and may disappear only partly after delivery. DeLee says the ovary activates the thyroid, sometimes to the point of producing symptoms of Basedow's disease. The parathyroids are also affected.

In cases where there is a lack of thyroid secretion (hypo-), the patients generally take on considerable amount of flesh and ofttimes the abdomen reaches a point where it simulates pregnancy and the women believe they are actually pregnant. These are cases of spurious pregnancy. An examination will prove a normal uterus and eliminate the question of gestation. Pregnancy may cause the disappearance of myxedematous symptoms. The symptoms may reappear after delivery. (Osler).

Hyperthyroidism without marked degenerative changes may at least temporarily decrease by pregnancy inasmuch as there is a greater call for thyroid secretion and therefore the excess is lessened. Williams states that pregnancy plays little or no part in the production of exophthalmic goitre, but there is no doubt that it exerts a deleterious influence upon the condition when it already exists.

Many times the hyperthyroidism develops or is increased during pregnancy. Such cases are reported by Freund, Hutchinson, Renaut and many others. The effect of hyperthyroidism upon the structure and function of the reproductive organs is another point worthy of mention. We already know that changes in the activity of the thyroid bodies have a very marked bearing upon metabolism, and secondarily upon the general health. It is a hard matter to say whether a certain disturbed function of the reproductive organs is due to the direct effect of the thyroid disturbance or whether it results from the general ill health caused by hypo- or hyper-thyroidism. Men who have carefully studied these problems have observed a number of cases in which it seemed very clear that the ovarian disturbance was a causative factor in the thyroid disturbance as in the cases of hyperthyroidism with each menstrual period, but there are other cases in which a possible vicious circle is set up, in which one disturbed function acts upon the other. Waller reports a case, age 39, who after amenorrhea, the result of double ovariotomy, had the menses return for four months while taking thyroid extract, amenorrhea returning after the thyroid was discontinued. The improvements which are observed in patients with pelvic disorders and the correction of menstrual disturbances upon thyroid medication are among our strongest evidence of the effect of the thyroid upon the reproductive organs. Lange, Halstead, Thompson and a few others have experimented with the effect of the removal of the thyroid during pregnancy with results that it is not at all safe to remove as large an amount of the gland as in the non-pregnant woman.

Many of the cases of thyroid enlargements noticed first during pregnancy may be classed as physiologic hypertrophy and congestion and be reduced after delivery, but quite a large number show their pathologic tendency by developing hyperthyroidism and by increasing in size and further undergoing degeneration and some of these show very little improvement after delivery or perhaps grow markedly

worse. There are cases which have sprung into prominence during the puerperium. These have no doubt suffered trauma, distention and stretching of blood vessels during delivery. The lack of thyroid secretion in pregnant women bears a very important relation to their general bodily condition; there is an increased tendency to invite the toxemias of pregnancy. Thyroidism and the toxemia of pregnancy has proved a fertile field for the true scientific investigation.

Lange in 1899 reported that the thyroid gland was definitely enlarged in 108 out of 133 women examined in the last three months of pregnancy. As albuminuria was present in eighteen of the women in whom no hypertrophy was noted, he thought that there might be a possible relation between its absence and the urinary changes. Using this as his foundation, he began the use of iodothyrin in cases of albuminuric pregnant women, and in some instances observed a rapid disappearance of the albumin. Later, his views were taken up by Nicholson and others and made the basis for study especially in the connection with the toxemias of pregnancy and particularly eclampsia. Knowing then the close relation between thyroid gland and metabolism, it led Nicholson to believe that eclampsia might be due to thyroid insufficiency, and to recommend the use of its extract in the treatment of the disease. Lange found that hypertrophy of the thyroid was one of the usual occurrences of normal pregnancy, and that its absence predisposed to a toxemia. This latter statement can well be considered if we stop to think of the functions of the thyroid. While it is a little difficult to state its functions definitely yet we are taught by physiologists that one of its functions is thought to be antitoxic, antagonizing unknown toxic substances supposed to be formed in the body in the course of metabolism.

It might be well just at this point of obstetrical connection to mention the fact that in a small percentage of cases an adenoma of the thyroid gland of the fetus may act as an etiological factor in the production of a face presentation, necessitating a destructive operation.

The influence of the thyroids upon lactation is another phase of the subject that has aroused considerable interest. Hertoghe believes that thyroid given to lactating women increases the flow of milk. Morse and Cathala report a case where a goitrous child with marasmus improved rapidly when thyroid was administered to the nurse. Halstead, of Johns Hopkins, is said to be the first to have produced and to have recognized the experimental production of congenital hyperplasia in dogs. W. M. Thompson, of Chicago, has also done a good deal of experimental work on pregnant dogs with the object of ascertaining the effect of disturbances of the thyroid during the height of sexual activity. He has shown that the removal of one thyroid gland has comparatively little influence on pregnant dogs or their pups after birth, but that the removal of one-half, with injuries enough to destroy the function of the remaining thyroid and para-thyroid tissues, is followed by tetanic seizures and death of mother and puppies; that the total removal of the thyroids, with some para-thyroid tissue, is followed by trembling and rigidity, and that after the birth of the puppies the milk was scanty, and later the mother and puppies died.

The following conclusions may be summarized; the fact remains that the thyroid becomes enlarged in almost every pregnant woman that is doing nicely; that there is clinical and experimental evidence connected between the thyroid and the sexual system of man and other mammals through its secretions, because a lack of thyroid secretion influences sexual activity adversely; that sexual activity, whether it be normal or abnormal, causes a hyperactivity of the thyroid bodies, and that this condition marks an index to the toxemia of pregnancy to counteract which these glands put forth their antitoxic protective power; that there is sufficient clinical proof in support of the theory that what we call a normal physiologic hyperactivity of the thyroid glands is a valuable defensive agent against the toxemia of pregnancy, and further, after taking into consideration all of the evidence we have at present, it seems that it is fair to conclude that there exists such a relation between the physiology and pathology of the reproductive organs and the growth, function, and degeneration of the thyroid gland as to make one carefully consider the pelvic organs in all cases of impaired thyroid functions.

While there are periods in the life of a woman which are associated with physiologic increased growth of this gland, we must bear in mind that not all disorders are of this class,

so that it is safe to say that it may be strongly urged that the growing girl receive greater attention at puberty, for the physiologic disturbance of a thyroid at this time may extend into a pathological process of later years. Cases showing marked enlargement of the gland during pregnancy should be carefully managed.

Any signs of hypo-thyroidism, toxemia or eclampsia should be promptly attended to.

As pointed out above, the inter-relationship which exists between the thyroid and the sexual apparatus are, at the present time, not fully understood, and, indeed, they are very complicated, but in time the whole riddle will be disclosed with the wiping out of the dark spots of obstetrics, and it will become clear in what ways pregnancy acts upon them and how they react upon pregnancy.

216 *East Franklin Street.*

QUARANTINE AND DISINFECTION IN SCARLET FEVER.*

By J. C. GITTINGS, M. D., (Philadelphia),
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Chief of Medical Service, U. S. Army General Hospital No. 9, Lakewood, New Jersey.

The first assignment of patients to the U. S. Army General Hospital No. 9 consisted of 139 cases of scarlet fever transferred in February, 1918, to relieve the pressure in the contagious wards of a near-by camp. The assignment was unexpected and the capacity of the ward set aside for contagious diseases was entirely inadequate, so that two additional wards of a capacity of 90 beds each were hastily converted into contagious wards.

The hospital functionates in a hotel of the orthodox double L design, which is admirably suited for quarantining two entire sections. It was possible to secure absolute lack of contact between patients and the healthy, except in the inevitable instance when orders were not obeyed. The nurses on duty in the wards were isolated as to their sleeping quarters and mess. The ward attendants slept in a portion of the contagious wards but were allowed to mess together in the mess hall on the lower floor, after change of gown, cap and presumably, disinfection of the hands.

The patients were admitted to the hospital in every stage of scarlet fever from the 2d to the 35th day, 20 per cent. being within the first five days of the disease. Opportunities for contagion therefore were numerous, and five additional cases which developed among contacts were treated in the wards. Two of the five occurred in assistant ward attendants after they had had one or two weeks service in the infected wards; another occurred in the brother of one of the ward attendants. This brother had been visited in his quarters by the ward attendant on the night before the latter was taken ill, and eight days later this brother developed a sore throat with slight temperature and ephemeral rash. As an isolated case it would undoubtedly not have been diagnosed. He was treated in the scarlet fever wards, however, without subsequent infection, and the conclusion was inevitable that the attack instanced a very mild type of scarlet fever of the kind most apt to spread contagion. The fourth patient was one of the kitchen detail who took meals to the ward. Contrary to orders he entered the diet kitchen instead of passing in the food from the outside. He was taken sick the day after reaching his home on a furlough, and was not included in the total number of patients treated at this hospital. The fifth patient was taken ill six days after preparing a large number of infected blankets for sterilization. He had nursed through the epidemic and no particular caution was deemed necessary in assigning him to this work. The agency of the infected blanket in his infection is not positive but strongly suggested. The sixth patient, whom we will designate as patient B, was admitted to the surgical wards in another part of the building, suffering from tubercular adenitis with an open sinus which required dressing, two days after quarantine had been lifted on the last of the original cases of scarlet fever. Seven days after admission he developed a sore throat followed by the rash on the next day. Patient B gave no history of direct exposure at the camp from which he was sent to this hospital and knew of only one case of the disease existing at that camp at the time he left it. The only possible exposure at this hospital was as follows: One of the original scarlet fever patients, whom we will call patient A, had developed a sub-maxillary adenitis on the forty-second day of his disease. This was at first supposed to be mumps but in the course of twelve days suppuration occurred and on the fifty-fourth day of his disease he was transferred to the surgical ward for operation. The surgeons were informed of all the circumstances and agreed

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Authority to publish granted by Board of Publication, Surgeon General's office.

to accept the case under proper precautions. The abscess in the sub-maxillary gland in patient A was opened five days before the admission of patient B. Both patient A and patient B were dressed in the same dressing room, the surgeon stating that patient A was always dressed after every other case. Patient B states, however, that on at least one occasion, shortly after his admission, he was dressed immediately after patient A. It was impossible to verify this by other testimony and we must remain in doubt as to whether the infection of patient B resulted from any fault in technique or whether he had been infected prior to admission to this hospital. No other cases developed after patient B.

A uniform minimum length of quarantine of forty-two days from the day of entry into the camp hospital was enforced. On the fortieth day each patient was carefully examined by the assistant chief of the Medical Service, Major William C. Moore. All those who showed any evidence of abnormality in the throat, nose or ears were inspected by the throat and nose specialist, Capt. Clarence Keeler, who decided whether or not the patients gave any evidence of being potential carriers of contagion. Those with disease of ears or upper air passages were given daily treatment. Fifty-nine per cent. of the patients were ready for discharge at the termination of the quarantine period, and 41 per cent. required more or less treatment. The average period of quarantine therefore was 47 days. This extension of time was due partly to the occurrence of several cases of mumps. Every patient exposed to this was kept in quarantine for twenty-one days' period of incubation for mumps, unless he had been immunized by a previous attack. Only three cases of mumps developed but the number of quarantine days were materially increased on account of this outbreak.

The construction of the hospital allowed space in the largest rooms for not more than six beds, while the average number of beds per room was only three. This type of construction increases the difficulties of nursing but unquestionably tends to prevent the spread of contagion. Many of the rooms had private baths adjoining them so that it was possible to effect complete isolation of contacts.

Upon the conclusion of quarantine, each patient was given an orthodox bath, shampoo, change of clothing, and was then transferred to a clean ward in another part of the building. All soiled linen was soaked in two per cent. liquor cresolis solution for two hours or longer before being sent to the laundry. Shoes, hats, and leather belts were exposed to formaldehyde gas in sealed closets for twenty-four hours. Blankets and patients' woolen clothing were sterilized in the auto-clave. After the evacuation of the ward, the hall carpet and paper wadding were carefully rolled up and dropped from a window to the ground, then spread out in an unfrequented space in a corner of the hospital yard and left to air for forty-eight hours. After this the carpet was brushed and stored, ready for relaying. (The use of carpets, of course, was absolutely unorthodox, but no other floor covering was available and some sound deadener in the halls was essential.) The floors of the wards and halls were mopped with a copious supply of the two per cent. solution of cresolis and all flat surfaces, bedsteads, furniture and wood work were wiped off with the same solution. The mattresses were left on the beds and every window in the ward was left open for three days to the April winds and sunshine. The attempt was made to expose the pillows to concentrated formaldehyde gas, but, in view of the difficulty in securing surface contact and penetration, the attempt was abandoned and the pillows thereafter were thoroughly sunned and aired. At the conclusion of the airing the hall carpets were relaid and the wards equipped for use. Within two weeks they were again occupied and have been in constant use ever since. Until February, 1919, there had not been another case of scarlet fever observed in this hospital. Many of the patients discharged from the scarlet fever wards remained in the hospital for several weeks and had free access during pass hours to all parts of Lakewood and at times to neighboring towns on the coast. So far as can be learned none of these patients carried the contagion to anyone in Lakewood or elsewhere.

Certain statistical data may be added. The longest quarantine was 63 days and 72 days in patients suffering respectively from hypertrophied tonsils, chronic follicular tonsillitis, severe deflection of the septum, and chronic naso-pharyngitis; otitis media, chronic tonsillitis and hypertrophied tonsils.

Physical Defects.—Of the 144 patients, 56

exhibited no defects of any kind; 10 exhibited defects which should have been a cause for rejection for military duty, viz.: deafness (1), gastric ulcer (1), valvular heart disease (2), hysteria (1), chorea (1), Graves' disease (1), tuberculosis (3). Seventy-eight patients exhibited minor defects, 7 of these consisting in simple enlargement of the thyroid without toxic symptoms; the other 71 had defects which were remediable, chiefly hypertrophied tonsils and dental caries.

Complications.—Eleven patients showed what might be called serious complications: pleurisy, otitis media, mastoid and cerebellar abscess, nephritis, myocarditis. The patient with mastoid infection and subsequent cerebellar abscess was the only one whose condition was at all critical. He also suffered from a toxic nephritis. His ultimate recovery was complete except for slight residual vertigo. Thirty-seven patients showed mild complications; transient albuminuria, bronchitis, functional cardiac disorder, pharyngitis, peri-tonsillar abscess, etc. Thirteen patients suffered from the symptom complex which has been described at this hospital as functional cardiac disorder, post infectious type. All of these patients recovered before their final discharge from the hospital.

Length of Quarantine.—Until the infecting organism of scarlet fever is demonstrated, the proper length of quarantine always will be open to argument. In accounting for the spread of this disease, the chronic carrier would seem to be the most likely agent, as is known to be the case in diphtheria and meningitis. *A priori* the unhealthy nasopharynx and throat might be under the suspicion of harboring infection. Examination by a throat specialist therefore may enable us to prevent the discharge of a potential carrier and, possibly, to hasten the discharge of a healthy person. In mild cases, with healthy throats, 35 days or less might cover the danger period. The period of quarantine prescribed in the army is forty-two days, and under circumstances such as those just described, where discharged patients were to mingle at once with uninfected patients and with the towns people it was much better to err on the side of safety than to run any risk of a premature discharge. The isolation for such a long period was rendered much less irksome because of the opportunity for exercise through the well ventilated corridor of a ward 300 feet long, and for recreation of various kinds.

Disinfection.—The factor of the human carrier in the etiology of contagious diseases is being accepted to such an extent as to make it extremely questionable whether any measure other than a thorough cleansing is necessary after any infection. Formaldehyde gas in proper concentration and with sufficient moisture probably will destroy the organism of scarlet fever. That this optimum result is often obtained is extremely doubtful. Disinfection of linen and woolens and disinfection and removal of the dust which accumulates on floors and flat surfaces, followed by thorough airing, appear to be the actual requirements for safety.

Conclusions.

1. The human carrier is by far the most important factor in the transmission of the contagion of scarlet fever.

2. The actual limit of quarantine in uncomplicated cases probably may be placed safely at not more than thirty-five days; before quarantine is lifted an examination of the nose, ears, naso-pharynx and throat by an expert should be the determining factor.

3. Thorough disinfection of linens and woolens with disinfection and removal of dust wherever it may have lodged, followed by thorough airing, constitute sufficient protection after the contagion of scarlet fever and are surely more effective than disinfection by formaldehyde gas as it is usually practiced.

Proceedings of Societies, Etc.

THE AUGUSTA COUNTY (VA.) MEDICAL ASSOCIATION

Held its regular bi-monthly meeting in Staunton, August 6. Papers were read by Drs. Elbyrne G. Gill and J. F. Armentrout, of Roanoke, Va., and a very interesting session was held. Following the meeting, the members were the guests at dinner at the Virginia Hotel of Dr. Kenneth Bradford, the former president.

The election of officers was held with the following results: President, Dr. J. B. Rawlings, Staunton; vice-presidents, Drs. Guy Fisher, New Hope; J. B. Stone, Churchville; H. G. Middlekauff, Staunton; secretary, Dr.

C. C. Jones, Staunton; treasurer, Dr. M. P. Jones, Churchville.

Drs. A. L. Tynes, Staunton, and R. S. Griffith, Basic City, were elected delegates to the House of Delegates of the Medical Society of Virginia.

The County Society.

This Department is conducted by the Committee on Component County Societies at considerable trouble and expense, and a copy of the Journal sent to members of the local societies and to the doctors of the unorganized counties. All of this is done for the purpose of interesting you in the work, which we take to be a great one, and of getting your aid in promptly completing the organization, and developing the usefulness of the societies already chartered. Your active co-operation is earnestly desired.

The Committee is composed of Drs. Southgate Leigh, chairman, R. S. Griffith, T. V. Williamson, C. P. Jones, E. H. Terrell, Joel Crawford, G. A. Stover, J. R. Garrett, D. M. Kipps, Stephen Harnsberger and W. H. Ribble, Jr.

The Committee will be glad to answer all inquiries addressed to 109 College Place, Norfolk, Va.

House of Delegates.

How Composed.

Each component County Society shall be entitled to elect to the House of Delegates, each year, one delegate and one alternate for each thirty-five members or major proportion thereof, provided that *each society shall be entitled to at least one delegate and one alternate.*

Some of Its Duties.

It shall have charge of all business matters pertaining to the Society which are not expressly assigned in the constitution and by-laws to the officers and committees.

It shall hold its meeting on the second day of the session of the Society, at 9 a. m.

It shall give diligent attention to fostering ethical and scientific spirit and the progressive organized work of the Society.

It shall make a careful inquiry into the condition of the profession in each county of the state.

It shall pass upon all motions, resolutions, inquiries and reports pertaining to appropriations and expenditures of moneys or those in any way affecting the general policy of the State Society or any proposed amendment to the constitution and by-laws and submit to the Society reports thereon.

It shall, on the third day of the annual session, elect officers, standing committees, delegates to the American Medical Association, and members of the Medical Board.

Administrative Officers.

The administrative officers of the Society are the president, first, second and third vice-presidents, secretary-treasurer, one councilor each for the ten congressional districts of the state, and five councilors for the state-at-large.

These officers have the interest of the Society at heart and beg the presidents and secretaries of component (local) societies to hold meetings for the diffusion of medical knowledge, for the increase of scientific study, and for the strengthening of the organization of medical men in the State of Virginia.

If the medical men of the State move with organized effort, much can be accomplished for the public good and professional welfare.

If component societies have not yet elected delegates and alternates to represent them at the October meeting of the State Society, we would suggest that it would be well to have these elections promptly.

Analyses, Selections, Etc.

WHAT WE KNOW ABOUT CANCER.

In February, 1917, by vote of the National Council of the American Society for the Control of Cancer, a committee composed of Drs. Robert B. Greenough, Boston, James Ewing, New York, and Jonathan M. Wainwright, Scranton, Pa., was appointed to prepare the manuscript of a Handbook on Cancer, for circulation among the members of the medical profession of the United States. This was done as a part of the campaign the society inaugurated for the collection and dissemination of facts in regard to cancer, to the end that its mortality might be reduced by a wider knowledge of the disease. The first manuscript was submitted to the Council of the Society at a meeting in April, 1917. After making changes suggested by members, a revised manuscript was submitted to the Council at a meeting

October 26, 1918, and, with certain minor changes, this was accepted and ordered published with the endorsement of the Council and in the name of the Society.

The handbook is designed to provide in a brief and readily accessible form the important facts about cancer in general, and its manifestations in the different situations where it most commonly occurs. It presents only in general terms the expectation of success attending the radical operative treatment of cancer in each of its different situations.

For the benefit of those of our readers who have not seen the pamphlet, we will publish it serially, beginning with this issue.

I.

General Considerations.

PUBLICITY AND EDUCATION.

As a result of the campaign which has been conducted by the American Society for the Control of Cancer for the education and enlightenment of the lay public on the subject of cancer, a greater and more accurate knowledge of this disease is already evident, and many fallacious ideas have been corrected. This has been the primary and most necessary step in the campaign to reduce the very great, and often unnecessary, mortality of this disease, for until the patient of his own accord seeks medical advice no steps can, of course, be taken toward making a diagnosis or applying the proper treatment. Much yet remains to be done in the way of education of the public, not only in the more remote rural districts but in the towns and cities as well, and it must be done wisely and temperately, and without producing so great a fear of the disease as to alarm people unnecessarily. It is the knowledge that the disease can be cured by radical treatment in its earliest stages that must be disseminated. Many laymen, and some physicians, find it hard to believe this fact. Cancer is not a disease that runs its course, like pneumonia or typhoid; it is an actual entity—as much a part of the individual as his finger or his nose, and it is either still a part of him and growing to a fatal termination or it must be removed entirely in order that he may be cured. The layman knows of the many cases that are not cured, whether an attempt at cure by operation has been made or not, but he rarely knows of the cured cases, for the reason that the individual who has been relieved of the disease by operation goes about his or her business as well as ever, and disguises, so far as possible, the loss of the organ or the scar of the operation by which life has been saved. It is difficult to controvert this personal experience of the individual by assertions of the possibilities or probabilities of cure by operation, but it must be done if the public is to understand the actual facts of the cancer problem. Every physician should feel it his duty to make these facts clear to the laymen within his reach. The physician of the present day must do far more than care for the cases of disease that call for his help. He is the health officer of his own clientele, and they look to him for knowledge to protect them from disease. The instruction which has been given to the public is already bearing fruit, and from many communities comes the report that patients now present themselves to their physicians much earlier than in the past with symptoms that they consider suggestive of cancer. Under these circumstances it behooves us to consider, as members of the medical profession, the obligations which rest upon us as the nearest and the first sought source of scientific knowledge, to give to our patients that wise counsel which they have a right to expect.

RESPONSIBILITY OF PHYSICIANS.

It is a well known fact that a considerable proportion of malignant tumors are not recognized by the doctor when the patient presents the indefinite early symptoms of the disease. Optimism too often replaces a careful physical examination. The great majority of cancers of the rectum are today treated as hemorrhoids for from one to six months. Uterine discharges are often not properly investigated, and curettings are not examined. Cancer of the tongue and mouth is permitted to advance because there is a positive Wassermann. Metastases are produced by repeated rough examinations. Malignant moles and epitheliomas of the skin are imperfectly removed. Clearly inoperable cases are operated on, thus bringing operation into disrepute.

These conditions call for a far keener appreciation of responsibility for the mortality from cancer than now generally exists in the medical profession. To collect and to make accessible to the physicians of this country the most fundamental and essential facts about cancer of the different organs and regions of the body is the object of this pamphlet.

STATISTICS.

Complete returns of cancer mortality are available only for the registration area of the United States, which, however, includes approximately 70 per cent. of the total population. On the basis of this information it is conservatively estimated that the mortality from cancer in the entire continental United States at the present time (1918) is approximately 90,000 per annum. According to sex, the mortality by principal organs or parts affected, based on the figures for 1914, is as follows:

ESTIMATED ANNUAL MORTALITY FROM CANCER CONTINENTAL UNITED STATES,

1914-1915

Organs or Parts	Males	Females	Total
Buccal cavity	2,725	570	3,295
Stomach and liver	15,787	15,056	30,843
Peritoneum, intestines, rectum	4,544	6,027	10,571
Female generative organs		11,965	11,965
Female breast		7,771	7,771
Skin	1,982	1,098	3,080
Others	7,838	4,637	12,475
All forms	32,876	47,124	80,000

The recorded mortality from cancer in this, as in other countries of the world, is gradually on the increase. The annual increase in the cancer death rate is approximately 2½ per cent. The recorded cancer death rate has practically doubled during the last forty years.

EXPERIMENTAL WORK

During the past ten years commissions and laboratories for cancer investigation have been established in many places in the United States, as well as abroad. In all of these centers research work has been carried on on the tumors of animals as well as on human cancer. All of the resources of chemistry, physics, physiology and biology, and the study of immunity reactions have been brought to bear upon the problem, and the work is still being carried on; but, as yet, the ultimate cause of cancer is not known. Many important facts, however, have been discovered, and by every fact contributed the growing structure of our knowledge of the disease is built up until, for instance, we now know many things that cancer is *not*, and useless expenditure in investigation along those lines has ceased. We know that cancer is not due, in the sense that infectious disease are due, to a parasite. We know that cancer is not communicated from one person to another, and that there is no danger of the nurse contracting the disease in caring for the cancer patient. We know that the influence of heredity in the incidence of the common forms of cancer in human beings is so remote that the factor of inheritance may, as a rule, be disregarded. We know that one form of cancer after another has been brought in relation to some form of chronic irritation, as a direct or indirect predisposing influence, and that cancer of the cervix, the lip, the tongue, the rectum, the stomach, and many of the forms of malignant disease of the external skin —Marjolin's ulcer, the Kangri cancer of Kashmir, the paraffin worker's cancer, and the roentgen-ray worker's cancer—are all closely associated in their inception with one form or another of chronic and repeated irritation. It has also been shown in the laboratory that rough compression and manipulation of a tumor are fully capable of setting its cells free to form metastases, and from this we learn to use the utmost gentleness in the palpation of a tumor for diagnosis, as well as to avoid compression, dragging, and all unnecessary trauma to cancer tissue during the operation for its removal. All of these facts we owe to the laboratory investigation of cancer, and we may reasonably hope that the next decade will contribute as much, or more information concerning this disease.

IMPROVED OPERATIVE TECHNIC

In the great surgical clinics the technical details of the operative treatment of cancer of the different organs are constantly under investigation with a view to improvement and to greater effectiveness. For most of the common sites of cancer the operative technic of the so-called radical operation is practically standardized. The site of origin and the mode of dissemination of cancer in the different organs is well known, and each standard operation aims to remove the tissues of origin and the tissues suspected of secondary involvement, by a wide margin and *without cutting into cancer tissue or scattering it broadcast in the wound.* There are problems still to be solved along these lines, especially in the simplification of the operation and in the reduction of the mortality and the possible complications, as in cancer of the tongue or cancer of the uterus. It is possible, however, to give a fair and guarded estimate of the comparative mortality, and of the prospect of success of the operative treatment of cancer in different organs. A successful radical operation results in the cure of cancer. While it is everywhere admitted that no fixed limit of

time exists at the expiration of which an individual patient may be said with certainty to be "cured" of the disease, yet it is a fact that the ordinary three-year period is sufficient for all practical purposes. While undoubtedly late recurrence may take place after the three-year period has elapsed in a small number of cases, especially in certain forms of cancer such as cancer of the breast and cancer of the stomach, in the vast majority of cases recurrence comes within this period, if at all; and the radical operation may be considered practically, if not absolutely, certain of success if no signs of disease have developed within three years.

RADIUM, ROENTGEN RAY AND CAUTERY

Radium and Roentgen Ray.—The effects of roentgen rays and of the radiation of radium, and of other radioactive substances on cancer tissue, have aroused great interest and much experimental and clinical study of their action has been made. In general, it may be said that effects ranging all the way from retardation of growth to actual destruction of tumor tissue can be secured by radiation. Certain forms of cancer tissue appear to show a greater susceptibility to the action of these radiations than the normal tissues of the body; especially is this true in regard to lymphoma, lymphosarcoma, giant-cell sarcoma of bone, and mixed tumors of the salivary glands. Cancer of the mucous membranes which is accessible to the direct application of radium radiation can often be destroyed by treatment. When metastatic deposits of cancer are present in the lymph nodes, however, by extension from the point of origin in the mucous membranes, radium cannot be counted on to destroy the disease, and a permanent cure is not to be expected. For these reasons radium is a safe method of treatment only for superficial cancer of the skin of the nonmetastasizing types, or for other forms of surface cancer which have been in existence so short a time that metastasis to the regional lymph nodes cannot possibly have already taken place. This period is at best an indefinite one; but we do know that in certain locations, such as the tongue or lip, early metastasis is the rule, while in other situations this period may be more prolonged. It is for these reasons that the proper treatment of established cancer of the lip, tongue, breast and other organs which are prone to cancer of the early metastasizing type is considered by surgeons to be by radical operation, with removal of the regional lymph nodes. The use of radium for treatment of local lesions of this nature, unless accompanied by surgical removal of the suspected lymph nodes, is inadequate, and is not justified by our present knowledge of the effects of radium on cancer tissue. For superficial nonmetastasizing cancer, however, and for many superficial skin lesions, such as keratosis senilis, or papillomata, which have a precancerous tendency, treatment by radium is to be preferred to operation. In certain cases of extensive nonmetastasizing cancer, also, the combination of operative treatment and subsequent radiation is a recognized and valuable procedure, and in the treatment of inoperable and incurable cancer roentgen rays and radium offer a field of the greatest usefulness. Under heavy radiation a bleeding, ulcerated, offensive surface can often be cleaned up rapidly, even though the disease continues to infiltrate the tissues and the metastatic deposits increase until the patient dies. There is no question of the symptomatic relief and comfort afforded to the patient by palliative treatment with roentgen rays and radium.

Cautery.—A method of treatment of cancer which has a certain number of advocates is that of cauterization. For small, superficial lesions the actual cautery has long been employed, with some success. When the disease is entirely destroyed the method is satisfactory, although the healing of the wound is prolonged and painful, and the scars produced are far more unsightly than after operation. A special adaptation of the cautery to uterine carcinoma has been advocated in the use of low heat and prolonged treatment. This method is still under trial, and it would be premature at this time to pass on its merits. Other fields, however, are open to the use of the cautery in many forms of cancer: First, its use is strongly urged by a certain number of surgeons as the most effective method to seal the lymphatics immediately after excision of a portion of a tumor for frozen section diagnosis, and second, the cautery may be employed for the palliative treatment of inoperable, ulcerated and bleeding tumors, often in association with radium or the roentgen rays. For the primary radical treatment of operable cases of carcinoma of the deeper tissues, however, the use of the cautery must be condemned.

SERUM TREATMENT

There have been innumerable attempts to produce a cure for cancer by drugs or tissue products, instead of by the mechanical destruction or removal of the tissue which is obtained by radioactive agents, cauterization or surgical operation. Not one of these methods has withstood the critical test of time—the serum of supposedly resistant or cured human cases; the serum of animals subjected to inoculations of human cancer tissue; the injection of human cancer emulsions as a vaccine, or of bacterial toxins. Each method has been given fair scientific trial and has been found to be of insufficient value to warrant its continued use.

"CANCER CURES"

Drugs of all kinds have been employed, both for local administrotion by injection or as caustic pastes, and for more general constitutional effect. In some the active agent is known as creosote; in others the remedy is secret, and the compound is sold at a high price to physicians or to laymen who are sufficiently credulous to purchase. No series of authentic cures of cancer has yet been demonstrated by any of these methods. Finally, the fake "cancer cures," herb and Indian doctors, and Christian Scientists, increase enormously the mortality from cancer. It is charitable to suppose that they do this rather from ignorance than by intention, but the result is the same in any case. The patient is encouraged to expect relief until his money is exhausted and his disease is too far advanced for cure by operation, when he finally drifts to the charity hospitals, where his sufferings can be controlled only by opiates, and he dies a lingering death, offensive as well to himself as to all with whom he comes in contact.

II.

Early Diagnosis and Treatment.

The early diagnosis of cancer is recognized to be the one factor of the greatest importance in the successful control of the disease, and it is well for us to consider all of the conditions on which this early diagnosis depends. Unfortunately, cancer in the different organs and regions of the body presents itself by a variety of different symptoms such that they must be considered not as manifestations of one disease, but rather as of many different diseases. In most situations, however, the dictum holds true that *the more certain the diagnosis the less the probability of cure.* In one organ, as the breast for instance, the earliest symptom of cancer may be either a tumor, discovered by accident, or an indrawing of the nipple or puckering of the skin. In another, as the tongue, the first symptom noted by the patient is an ulceration which shows no tendency to heal. In other portions of the body, like the uterus or the rectum, the first symptom to attract the notice of the patient, or the physician, may be a discharge of blood from an internal ulcerated surface, which is only to be detected by a digital or visual examination. In all of these situations conditions other than cancer may give rise to similar symptoms—in other words, the symptoms of early cancer are not distinctive and serve only to arouse suspicion of the presence of that disease. When the abdominal viscera are affected by cancer the symptoms are still less definite, and the early diagnosis is made even more difficult. In these regions, however, the development of examination by the roentgen ray has given us a means of early diagnosis which is not to be neglected. When symptoms are present, suggestive of cancer, but insufficient to make a positive diagnosis, two courses are open to the physician: The first is to wait until more distinctive symptoms develop; the second is to proceed at once to an exploratory operation. The first method, that of waiting until a positive diagnosis can be made, is the one that has been most commonly practiced. It is the easy way, and it is one of the factors most directly responsible for the present enormous mortality of the disease. It is in the hope that this waiting method may be abandoned that this pamphlet is prepared for publication.

EXPLORATORY OPERATIONS

Diagnosis by exploratory operation is the method which promises the greatest and most immediate reduction of the mortality of cancer. The exploratory operation must be adapted to the region or organ affected by the disease, and it must be emphasized that a procedure which is suitable in one situation may be extremely dangerous in another. The desirability of an early exploratory operation, therefore, varies with the situation of the disease.

BIOPSY

The operative removal of tissue for pathologic examination (biopsy) is a measure open to discussion. Where a positive diagnosis can be made without this aid, the best and safest

treatment is, undoubtedly, to proceed at once to immediate radical operation. To cut into cancer tissue "in situ," undoubtedly adds to the danger of dissemination of the disease. In certain regions, however, the radical operation for cancer involves such great operative risk and such serious mutilation, that it cannot with justice to either patient or physician be advised on anything but a positive diagnosis. In this class fall especially cancer of the larynx, cancer of the tongue and jaw, and spindle cell sarcoma of the long bones. Under these conditions, especially if the tumor is an ulcerated one, the removal of a superficial fragment for immediate frozen section diagnosis is held to be permissible, although no delay should be tolerated, and the radical operation should be completed under the same anesthesia. Many surgeons believe that in such an exploratory operation the wound in the suspected cancer tissue should be immediately and thoroughly cauterized to prevent the operative implantation of living cancer cells during the subsequent stages of the operation.

The safest procedure to be followed in doubtful or suspected cases of cancer in each organ or situation is discussed in the subsequent sections of this pamphlet. It is sufficient here to urge on the practicing physician the dangers of delay, and the advantages to the patient of an early positive diagnosis.

EARLY OPERATION OFFERS THE BEST PROSPECT OF CURE

It is the well established opinion of the best medical authorities that at the present day early and thorough operative removal of the primary tumor offers the most certain cure for cancer. Other methods of treatment are of value in incurable cases, but to obtain a sure and complete cure of the disease the original focus must be eradicated, together with all of the tissues which are known in each region to be the ones earliest invaded with the beginning of extension of the disease. When the disease can be recognized in its early stages, and this thorough and complete operation promptly performed, the patient should, theoretically, be cured of cancer with almost as great certainty as a cure can be obtained in cases of appendicitis. Twenty years ago the early signs of appendicitis were little known. Cases came late into the hands of the surgeon, and the mortality was enormous in comparison to that of the present day when the public and the physician both recognize the importance of early operation. It is surely not too much to hope that a similar reduction in the mortality of many of the more favorable forms of cancer will take place when the imperative need of early operation for this disease is better understood.

CONDITIONS ESSENTIAL TO EARLY OPERATION.

1. *The Patient.*—The first essential in procuring prompt treatment of cancer cases is that the lay public should be educated to understand, as they now understand in the case of appendicitis, the need of early operation, and the importance of the early recognition of the disease. We live in a period of publicity, and medical matters are coming to be recognized as one of the subjects in which greater public knowledge works for the common good. The American Society for the Control of Cancer has done a great deal by circulars, public lectures, and by legislative and state committees, to promote this work. City and state boards of health and individual health officers in special districts have contributed the help of their official position to this work, and the daily press and the magazines have given their assistance in this worthy cause. A better knowledge of the disease is already evident in those districts where this publicity work has been carried on, but much remains to be done, and there are many people who can be reached only with difficulty who must rely for instruction on the only health officer with whom they come in contact —the family physician. It is on him that the duty finally rests to inform, to correct misapprehensions and obsolete ideas, and to teach his people the early and significant symptoms of the disease. Nothing can be accomplished in the individual case until the patient is sufficiently alarmed, by symptoms he has been taught to regard as suspicious, to consult his physician for examination and advice.

2. *The Physician.*—It might well be supposed that as soon as the patient consulted his physician his disease would be recognized and early and adequate treatment at once applied. Unfortunately this is not always the case. Most of the physicians of this country have been taught in their medical schools and their text-books of surgery the distinctive and typical symptoms of cancer, and by the extent to which they are typical they are the symptoms of cancer which is no longer early but has already progressed to the inoperable stage. It is the early and uncertain cases that must be

recognized if any material improvement in the mortality is to be brought about.

3. *Examination.*—It would seem unnecessary to lay stress on so elementary a method as actual physical examination as an aid to diagnosis, were it not for the fact that the neglect of a physical examination by the physician too often robs the patient of his or her chance to obtain a cure. Sometimes the examination is abandoned or delayed in the mistaken object of saving the patient's sensibilities. Sometimes it is neglected because the physician is not alert to the possible grave significance of the patient's symptoms. In any case, it may fairly be said at the present day that the physician *who fails, by a physical examination, to make sure that the symptoms complained of are not due to cancer fails to give his patient the chance of cure to which he is entitled.* Especially is this true in cases of cancer of the breast, of the uterus, and of the rectum, where the early diagnosis depends entirely on physical examination.

4. *Diagnosis.*—If cancer is to be detected in its early stages its earliest symptoms must be well known to the physician, and a large number of doubtful cases must be taken care of where positive symptoms are lacking but a strong suspicion of cancer exists. How are such cases to be handled? On the one hand the physician does not wish to let himself get the reputation of being an alarmist, and drive his patients to unnecessary operations on a mistaken diagnosis. On the other hand, he cannot, for the sake of the patient, wait for the more certain symptoms to develop, and for the disease in the meantime to become incurable. It is the physician's reputation against his patient's life. There can be only one answer —the life of the patient is the only consideration. Under these circumstances the physician deserves the aid and the sympathy of the community. The public must be taught that the physician who is alert to recognize and procure operative treatment in the early stages of the disease will undoubtedly at times cause patients the expense of an unnecessary surgical consultation—an expense that most persons will gladly bear if they can be assured that they are not afflicted with this terrible disease. It is the early cases that offer the difficult problems, and deserve the service of the very best experience. And, finally, there are very few regions of the body in which, in a doubtful case, with the laboratory facilities of a modern hospital, an exploratory operation cannot be performed to procure an immediate positive diagnosis by frozen section examination of the suspected tissues. The physician who is alive to his responsibilities in the early diagnosis of cancer and who brings his patient to operation during the early and uncertain stages of the disease, renders the greatest service to his community and deserves that this fact be recognized.

5. *Consent of Patient to Operation.*—Granting that the patient seeks early advice and that the physician recognizes the early symptoms and advises immediate operative treatment, the consent of the patient to this operation must be obtained. In the experience of the older members of the community, and they are the ones concerned in the cancer problem, one after another of their friends and acquaintances has died of cancer, and many of them of recurrence after operation. Is it to be wondered at that they have little faith in the surgical treatment of the disease? They do not know that during the last twenty-five years the operations for cancer of different organs have been standardized, the patients have been operated on earlier, and the number of cures have been materially increased. They do not even know of the cured patients with whom they come in daily contact, for the cured patients do not tell, and the scars of operation are rarely visible. These are some of the facts about the disease which must be established with the laity. Such facts are given in this pamphlet, and may be used with confidence by any physician who wishes a fair statement of the situation.

(*To be continued.*)

The Management of War Hysteria.

In a paper on this subject, read at the meeting of the American Medical Association, in Atlantic City in June, Dr. Tom A. Williams, Washington, stated that nearly ten per cent. of the soldiers incapacitated during an attack are found to have hysteria. A large proportion of them can be restored immediately if skillfully managed and returned to duty without loss of efficiency. The physician must understand thoroughly the psychological mechanism of the patient and must exercise a dynamic volition which will compel him to use the effort demanded.

In the more complex cases where hysteria has become fixed individual analysis is necessary and a longer course of suggestion and persuasion. The inert man must be differently treated from the determined man. The former is the easier to cure but the more difficult to keep well.

The best method of treatment is to change the patient's mental attitude by re-educative procedure. In order to accomplish this it is essential that the physician be able to enter into the thoughts and feelings of the patient. It is then easy to modify his viewpoint and lead him out of the woods into the light.—(*Author's Abstract.*)

Correspondence.

BIRTHS AND DEATHS SHOULD BE ACCURATELY REPORTED.

Richmond, Va., July, 1919.

Virginia Physicians:

For statistical purposes and legal record, the accurate and legible report of births and deaths is as important as promptness.

We estimate that ten per cent. or more of our appropriation is consumed in clerk hire and postage, simply to secure accurate statements as to causes of death, omissions from certificates of births and deaths, and the correction of other errors as to names, dates, place, color, sex, legitimacy, etc.

Probably our greatest item of expense is due to the custom which some physicians have of delivering all certificates to willing registrars, instead of to the one in charge of the locality in which the births occurred.

This causes dissatisfaction with the correct registrars, and leads to many resignations of trained and efficient men. Please bear in mind also that delayed reports add greatly to our labor, and delay us in mailing the Child Bulletin and birth card to the mothers, who have learned to expect them promptly. Besides this, the law requires births to be reported within ten days. The observance of care as to these points is our chief request now.

A few do not seem to realize that our twofold aim in reference to the midwife, is first, to educate the public from her to the physician, and at the same time to render her less unsafe, by requiring her to register with the local registrar, and thus come within reach of our influence and instruction.

You can aid greatly by teaching cleanliness to each with whom you are thrown, and by seconding our injunction not to make vaginal examinations. They cannot be depended upon to sterilize their hands, though we do urge them to use mercuric iodide soap for themselves and patient.

We have succeeded in reducing our list of midwives from 9,466 to 5,916, though the smaller number, owing to our agitation and the scarcity of doctors, reported during 1918 22,887 births out of a total of 65,859 (including 3,008 still births), as against 21,889 reported by them during 1917 (including still births). In reporting a puerperal death, always so state when it is a midwife case, especially if septic. We desire to make a statistical study of their work.

During the last three months of 1918, nearly 12,000 deaths from influenza were reported. The total to date will probably reach 15,000 or more. Please bear in mind the fact that the U. S. Bureau of the Census expects us to query deaths from pneumonia and broncho-pneumonia, to learn whether or not influenza, measles, whooping-cough or other cause, is the primary and real cause. If pneumonia is the only cause, write as contributory cause, "None." If other disease or cause was primary, pneumonia can be given as a contributory.

W. A. Plecker, M. D.,
State Registrar.

The Three Crosses.

The Iron cross is black as death and hard as human hate;
The wooden cross is white and still and whispers us, "Too late";
But the Red Cross sings of life and love and hearts regenerate.

The iron cross is a boastful cross and marks a war-made slave;
The wooden cross is a dumb, dead cross and guards shallow grave,
But the Red Cross reached out its arms to solace and save.

The iron cross is a Kaiser's cross and narrow is its clan,
The wooden cross is a soldier's cross and mourns its partisan,
But the Red Cross is the cross of One who served his fellowman.

EDMUND VANCE COOKE.

(Paris edition, American Red Cross Bulletin.)

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Editorial.

Action of Hydrochloric Acid on Gastric Function.

Physiologists find great interest in discussing hydrochloric acid in gastric juice, not alone because it is found to be an important factor in its action upon both the food and the stomach itself, but also because of the very interesting fact that this mineral acid is secreted in the stomach and that it is the only secretion of the body containing a free acid. It is generally believed that the border cells constitute the acid secreting cells. (Howell). As they are located in the middle portion of the stomach, in greatest number, it is here that acidity is greatest. The pylorus and fundus are comparatively free from acid-forming cells. Now, since no acid is found in the blood or lymph, it is quite apparent that these specialized cells in gastric mucosa take out of the blood the chloride (probably sodium chloride); and, by breaking up this salt and combining with hydrogen,—hydrochloric acid is secreted in the stomach. It should be recalled that in the pyloric region of the stomach the pepsin forming glands are located chiefly.

It is not our purpose to discuss the general subject of gastric functions but to limit ourselves to a comment upon the action of hydrochloric acid as the stomach performs its function. We may first note briefly the action of HCl upon food. Pepsin acts only in hydrochloric acid medium on proteins. The passage of the protein to the peptone under the influence of pepsin, in a hydrochloric acid combination, is a complicated one but generally this process is said to pass from native protein to acid albumin (syntonin) to primary proteoses (pro albuminoses) to secondary proteoses (dextro-albuminoses) to peptone (all through a process of hydrochloric acid-pepsin action). One should recall that this gastric action upon protein is merely a preliminary step and, as such, serves as a necessary factor in duodenal digestion when the pancreatic juice further acts upon it.

In this connection experimentation in the field of gastric motility reveals some interesting facts. The usual meal requires some 300 to 400 contractions of the stomach to lift it to, and expel it through the pyloric outlet. This work is performed by the stomach through several general influences. The chief of these influences is the hydrochloric acid control of the pylorus. The acid chyme of the stomach is thrown through the pylorus into the duodenum and this causes contraction of the pylorus. The pylorus remains closed until the alkaline juice of the duodenum neutralizes the injected stomach juice and, when this is accomplished, the duodenal pylorus again opens. This process goes on constantly until the stomach is practically empty; and when the normal stomach is fasting it remains in a state of recurrent contraction. Hunger is caused by rhythmic contractions of the nearly emtpy stomach. The stomach is never completely empty. It contains a residuum of 20 to 50 c. c. of hydrochloric acid and pepsin chyme. When the food is swallowed an increase of flow of gastric juice occurs. Peristaltic contractions are accelerated. The food-chyme, mixed with acid and pepsin, presses from the parsmedia into the pylorus. This makes a constant pressure upon pyloric sphincter.

The nature of the food is a factor entering into this emptying-time of the stomach in addition to the degree of acidity of the chyme poured through the pylorus. The protein influences a slower and more prolonged closure

of the pylorus than the carbohydrate diet. It is known, also that the protein diet is slower to initiate pyloric opening. The protein unites with much of the free HCl; and it excites a larger secretion of HCl and, as a result, tends to delay gastric emptying. Cannon has shown that at the end of a half hour eight times as much of carbohydrate is absorbed as protein.

There is also another factor acting upon the stomach secretion through nervous innervation. Interpretation of gastric unbalance, through the contrary nervous inhibition of vagotonia and sympathocotonia, is as yet unsatisfactory in practical fields of medicine. However, spasm of the pyloric sphincter, deep spastic contractions of the stomach and hourglass incisure of the stomach, are muscular disturbances consonant with excessive hydrochloric acid. On the other hand, persistent low state of hydrochloric acidity tends to induce tardy and lazy contractions of the stomach and, further, to favor a patulous pylorus. This latter condition results in premature emptying of imperfectly acidified gastric contents into the duodenum, which in turn sets up serious gastrogenic disturbances. As hydrochloric acid serves so important a function, when this acid appears in the stomach in excessive amounts it necessarily sets up gastric symptoms, rather than proper gastric functions. And so this acid juice plays an important role in the symptomatology of gastric dys-function and gastric disease.

Married—

Dr. Stuart McGuire, Richmond, and Miss Ruth I. Robertson, of Walkerton, Canada, formerly superintendent of St. Luke's Hospital, this city, August 12.

Dr. Robert Finley Gayle, of this city, and Miss Elizabeth Marshall Cole, Raleigh, N. C., August 16.

Dr. James W. Tipton, Dublin, Va., and Miss Alpha Heath Johnson, Hillsville, Va., July 23. Dr. Tipton has only recently returned from army service.

Dr. Wester Ghio Suiter and Miss Nancy Elizabeth Joyner, both of Garysburg, N. C., July 16. Upon their return from their wedding trip, they will make their home in Weldon, N. C. Dr. Suiter has recently received his discharge from service in the army.

News of M. C. Officers.

Dr. J. Morrison Hutcheson, of this city, who was in command of base hospital No. 60 on the Meuse front with the rank of major, has returned home, the unit having recently been mustered out at Camp Sherman.

Major Waller Nelson Mercer, of this city, who expected to return home in July, received orders at the last minute which necessitated his continuing his overseas service. He is now in charge of evacuation hospital No. 49, located at Coblentz.

Capt. M. C. Sycle received his discharge from Ft. Benjamin Harrison, Ind., in July and, after a short visit in New York, returned to this city, where he will limit his practice to urology and the treatment of syphilis.

Major Gerald A. Ezekiel, who has been overseas for two years as surgeon with the 311th Field Artillery and who, since his return to this country, has been attending the Mayo Clinics at Rochester, Minn., has returned to this city to resume his practice.

Dr. A. Barnes Hooe has returned from overseas duty with the U. S. Army, and resumed his practice at 1220 Sixteenth Street, Washington, D. C.

New Member of State Board of Health.

Governor Davis, on the first of this month, appointed Dr. G. L. Morriss, of Buckingham, Va., a member of the State Board of Health, to succeed Dr. Reid White, of Lexington.

Dr. and Mrs. William Branch Porter,

Richmond, visited relatives in Powhatan County, this State, last month.

Dr. and Mrs. J. L. DeCormis

And son returned to their home in Accomac, Va., the latter part of July, after enjoying a trip to Toronto, Thousand Islands and Niagara Falls.

Dr. and Mrs. James H. Smith,

Of this city, have been the recent guests of friends in Fredericksburg, Va.

Dr. and Mrs. D. A. Kuyk

Are motoring in the north, and will not return to their home in this city until early September.

Victoria to Have Small Hospital.

A small but up-to-date hospital is to be erected in Victoria, Va., by Drs. E. L. Kendig, of Victoria, and W. D. Kendig, of Kenbridge.

Dr. B. Ashby Pope,

Of Newsoms, Va., is spending a few weeks in New York, where he is taking a post-graduate course at the New York Post-Graduate Medical School and Hospital.

Dr. Sidney B. Trattner,

Recently returned from army service, announces the opening of his office at 114 North Fifth Street, for the practice of Ophthalmology.

Lynchburg Healthy Place.

It was announced on August 11th, that Lynchburg, Va., had not had a death among its white population in seven or eight days, except one man who committed suicide. Even this death occurred in the suburbs and not in the city proper.

Dr. and Mrs. E. B. Talbot

Have returned to their home in Richmond, after a visit to Atlantic City.

Dr. and Mrs. Harry Wall,

Of Claremont, Va., stopped for a visit in this city last month, en route from New York to their home. Dr. Wall recently returned from overseas service in the army.

Dr. William B. Hopkins,

Who has been attending the Mayo Clinics at Rochester, Minn., since his discharge from the army, has returned to this city and is located at 421 East Franklin Street.

Colored People to Have Hospital.

On the 15th of this month, the colored people of Washington County, Virginia, and Sullivan County, Tennessee, launched a campaign for the purpose of raising $20,000 to be used in the erection of a modern new hospital for the use of the colored race in these two counties. It will most probably be built in Bristol.

Dr. H. Stuart MacLean

And family, of this city, have returned home from a motor trip which included the Valley of Virginia and many northern points of interest. On the trip they went as far north as Connecticut.

Medical Society of Virginia.

The semi-centennial meeting of the Medical Society of Virginia will be held in this city October 28-31 inclusive, under the presidency of Dr. Ennion G. Williams, who is also State Health Commissioner. This meeting promises to be unusually attractive as it will bring together many doctors who have seen service in the world war, and will thus be not only a medical meeting but a reunion of doctors and friends.

Make your plans to attend. Officers of the Society or members of the local committee on entertainment, named in our last issue, will gladly furnish any desired information.

Dr. Southgate Leigh,

Norfolk, Va., was recently appointed chief surgeon of the Virginian Railway, and Dr. J. H. Culpepper, also of Norfolk, was appointed assistant to the chief surgeon.

Dr. W. R. Williams

Returned to his home in Richlands, Va., last month, after a two weeks' stay at the Mayo clinics.

Dr. DeJarnette Vindicated.

The many friends of Dr. J. S. DeJarnette, superintendent of the Western State Hospital, Staunton, Va., will be pleased to know that in the recent suit for $50,000 instituted against him by a former patient, the jury rendered a verdict completely vindicating the plaintiff of the charges brought against him.

Dr. Bernard Kyle,

Lynchburg, Va., was a visitor at Natural Bridge, Va., early this month.

Dr. and Mrs. Hugh M. Taylor,

Of this city, have been visiting in Winchester and Clarke County, Va.

Addition to Be Made to Stuart Circle Hospital.

An extensive addition is to be made to Stuart Circle Hospital, this city, in the near future. This will consist of a new wing to the south end of the present building. It will

contain forty-two additional beds for patients, a number of offices for physicians, and the necessary diet kitchens and baths.

Dr. J. B. Fisher,

Midlothian, Va., has been made president of the Nuttree Mill Company, recently organized in Midlothian and incorporated with a minimum capital of $10,000. This will reopen a splendid flour and corn mill at that place.

Dr. Joseph A. White,

Of this city, is at the White Sulphur Springs, W. Va., for his annual summer's visit.

Oxford Orphanage to Have New Hospital.

Work has been commenced on the $75,000 Hicks Memorial Hospital at the Masonic Orphan Asylum in Oxford, N. C. The building is to have three stories and be capable of accommodating fifty patients.

Obituary Record.

Dr. Robert Semple Bosher, Jr.,

A prominent physician of this city, died at his home July 20, after an allness of only a week. His death came as a shock to both relatives and friends as he was apparently in the best of health to a short time before his death.

Dr. Bosher was born in Richmond 44 years ago. He received his academic education at the University of Virginia and later studied medicine at the Medical College of Virginia, from which he graduated in 1900. He then took a special course of study in both New York and Vienna. Upon his return home, he became identified with the Medical College of Virginia Dispensary and devoted much of his time to the fight against tuberculosis in this city. He was a pioneer in the establishment of tuberculosis clinics in Virginia, was greatly interested in the work of Pine Camp Hospital for tubercular patients and was one of the founders of Stuart Circle Hospital.

Dr. Bosher was unmarried. He is survived by his mother, two sisters and a brother. He was a nephew of Dr. L. C. Bosher, of this city.

RESOLUTIONS ON THE DEATH OF DR. ROBERT S. BOSHER, JR.

WHEREAS, It has pleased Almghty God to remove from our midst, DR. ROBERT S. BOSHER, JR., who for fifteen years has been a valued and beloved teacher in the Medical College of Virginia, of which he was also a distinguished alumnus, therefore, be it

RESOLVED, First: That the faculty in meeting assembled wish to place on record their appreciation of his services to the College, particularly in the highly scientific and painstaking work he has done in the College Free Dispensary, and also their appreciation of his character as a man.

Second: That these resolutions be placed on the minutes, published in the daily press, Virginia Medical Monthly and a copy be sent to the family.

CHAS. R. ROBINS,
GREER BAUGHMAN,
MANFRED CALL,
STUART McGUIRE,
ALFRED L. GRAY,
Committee.

The following resolutions were adopted at a meeting of the Richmond Academy of Medicine and Surgery held on the 21st ult.

WHEREAS, It has pleased God, in His wisdom, to remove from our midst ROBERT SEMPLE BOSHER, JR., be it

RESOLVED, That the Richmond Academy of Medicine and Surgery has lost a valued member; the medical profession of the city an esteemed colleague; and the poor—particularly those afflicted with tuberculosis—a real friend who was always ready to help them not only medically but financially. The science of medicine was more attractive to him than its practice, except when his time and abilities could be utilized in doing some real good; then he gave without stint all that was in him. And be it further

RESOLVED, That these resolutions be spread upon the minutes of the Richmond Academy of Medicine and Surgery, that they be published in the daily papers and the Virginia Medical Monthly, and that a copy be sent to the bereaved family:

CLIFTON M. MILLER,
E. C. LEVY,
P. D. LIPSCOMB,
Committee.

Dr. Alexander George Crockett

Died at his home at Max Meadows, Va., July 27, after a long period of illness, aged 57 years. He was a graduate in medicine from the Vanderbilt University, Nashville, in 1885. Dr. Crockett was prominent in his section, both professionally and personally. He represented his district in the Senate of Virginia for the term preceding the present one and was a candidate for re-election, but withdrew owing to his rapidly failing health.

Dr. Crockett was twice married. He is survived by eight children and a large family connection.

Dr. C. T. Lewis,

Until about a year ago a practising physician of Staunton, Va., died at his home at Ft. Defiance, Va., July 22, aged 66 years. He was a native of Washington, D. C., and moved to the Valley of Virginia about thirty-four years ago. He studied medicine at the George Washington University Medical School, from which he graduated in 1878. His second wife survives him.